E&MJ METAL AND MINERAL MARKETS

WEEKLY MARKET INFORMATION ISSUED BY THE PUBLISHERS OF ENGINEERING AND MINING JOURNAL

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THIS WEEK IN THE MARKETS . . .

- **Copper average moves up—custom smelters lift price.**
- **Aluminum market remains tight; Alcan may reduce shipments.**
- **GSA asks for more lead and zinc—expected to get little of either.**

COPPER—Domestic average 43.144c, ref'y.

Copper was sold in heavy quantities both in the foreign and domestic market. Custom smelters sold larger amounts and at prices in the domestic market as high as 46c delivered. Some fabricators expected they could get more 43c copper for December but have been disappointed—some have gone into the outside market at prices approaching 48c.

October Copper Institute figures show U. S. primary output at 127,765 tons, deliveries 133,946, stocks 49,738 and crude production 100,208 tons. Outside the U. S. refined production was 116,490 tons, deliveries 112,952, stocks 177,423 and crude primary output 145,462 tons.

The LME price moved up rapidly—a thin market meant an exaggerated effect as fabricators became more uncertain about the nearby supply.

LEAD—15½c, N. Y. (f.a.s. Gulf 13¾-14c)

Lead sales for the week increased to 13,988 tons. The market is firmer this week than last. Demand in Europe is strong. Some feel if European demand strengthens further and it is reflected in the LME price the U. S. price could be raised. GSA is not expected to get much metal—answers are due by noon Nov. 18. More consumers want flat prices now than is usual.

TIN—98⅜c, prompt, N. Y.

Tin here and in Europe has moved up sharply. Uncertainty in Nigeria over the labor situation, discord in Southeast Asia, and covering of shorts on the LME where the quantity of metal is limited, probably all contributed to the higher prices.

QUICKSILVER—$279-$283 per flask, N. Y.

There has been little change in the quicksilver market in the past week. Not much business was done. There are suggestions a little more Mexican metal has come into the market.

ZINC—13c, East St. Louis (f.a.s. Gulf 11¼)

Zinc continues tight; no one expects this to change in the near future. Special High is especially short. GSA asked for tenders and answers are to be in by noon Friday; it will get very little metal. There are suggestions the premium on High Grade might be increased.

ALUMINUM—Pig 22.5c per lb; ingot 24.4c.

Aluminum is as tight as ever and pressure of demand is still strong. Aluminium Ltd. has warned its customers here that they can expect cuts in shipments of Canadian aluminum owing to production cut-backs at Arvida resulting from a water shortage. Arvida has a normal annual capacity of 354,000 tons.

At meetings in Washington last week the Committee for Reciprocity Information heard spokesmen for aluminum firms discuss the U. S. aluminum tariff. U. S. producers opposed cuts in the tariff. Aluminium Ltd. favors the cuts as do many fabricators.

Olin-Mathieson announced it is going ahead with plans to build primary plants and rolling mills in the Ohio Valley.

ODM said it will stockpile no aluminum in the first half of 1956 (see story on page 3).

The Aluminum Extruders' Council is sponsoring a meeting today in Washington at which spokesmen for the three major primary producers in the U. S. and Aluminium Ltd. will discuss the outlook.

PLATINUM—$97-$112 per oz.

The shortage of platinum here and in Europe continues to become more acute. Prices in Europe are reputed to have reached £40¼. Many factors see no let up in the near future; demand from catalyst users, the main source of the pressure, is not expected to diminish soon. Efforts are being made to expand output, but supply elasticity is limited because so much platinum is a by-product of other mining operations.

SILVER—91⅝c N. Y. (London 79¼d)

Demand for silver is strong though the busy season should end soon; the demand may drop slightly then. In the past week producers have supplied more metal—it is not certain if there is any buying now from the Treasury.

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P D M FIRE REFINED

COPPER SULPHATE — NICKEL SULPHATE

SELENIUM — TELLURIUM — PRECIOUS METALS

Buyers Of

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SCRAP METALS, and RESIDUES

American Zinc Uranium Mill To be Completed Early in '56

American Zinc, Lead and Smelting Co. in its quarterly report to stockholders for the third quarter of this year, showed net income of $507,106; for the comparable quarter of 1954 net income was $438,602. Net income for the first nine months of this year was $1,584,391 and for the first nine months of 1954 it was $1,264,795.

Total sales for the quarter are 20% above the same period last year. For the 9 months total sales increased $12,126,721 or 27% above the same period of 1954.

The tonnage of zinc products shipped was increased by 14% above the third quarter of last year. For the 9 months total shipments of zinc products show an increase of 10% above 1954. Shipments of all products show an increase of 7% above the 9 months of 1954.

The demand for all zinc products continues at plant capacity. Planned operating schedules of customers indicate demand will remain at or near current levels for the foreseeable future.

Construction of the uranium processing mill at Moab, Utah, which is under contract to Foley Brothers, Inc., is making satisfactory progress. It is now indicated that the mill will be completed and placed in operation by the end of the second quarter of 1956 unless there is some unforeseen delay in the delivery of material and equipment. The work at present is well ahead of the planned schedule.

The Piquette Mine in the Wisconsin district, operated as a joint venture, is now operating at near capacity and the margin of operating profit is at a satisfactory level.

The operating schedule for the Young Mine, South Friends Station, Tennessee, has been somewhat changed as a result of various factors retarding the work. It is now operating on the basis of approximately 500 tons of ore daily and expects to gradually increase this to a point of full single shift production of from 1,000 to 1,250 tons a day by the end of the first quarter of next year.

The Nellie B. properties in the Tri-State district are rapidly being depleted. It will, no doubt, discontinue production there during the last half of 1956. The present grade and prices with the recent increases in the cost of labor will make it impossible to mine the low-grade reserves remaining in this property.

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Western States Recommend Relief Measures for Mines

Seven hundred delegates from eleven Western states, plus South Dakota and Alaska, met last week in Sacramento, Calif., and analyzed the condition of the West's minerals one by one. Among the established goals were these:

The raising of tariffs on mineral imports from 7% to 15-60%.

Restoration of a "free" market for newly mined gold through legislation to stop the Treasury's sale of gold from monetary reserve to private industries.

Exemption of new mines from income taxes for three years after start of commercial production, and the allowance of cost of mineral exploration and development as a tax deduction without present limitations.

Annulment of all rules and regulations prohibiting possession of Federal lands by citizens of the U. S.

The West, simultaneously, would oppose any legislation leading to further control and withdrawal of Federal lands from the public domain.

The conference noted President Eisenhower's wish that the "mining industry be maintained in a healthy condition." This desire can only be attained by assuring to U. S. mining industries their fair share of the domestic market.

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October Special High Grade Zinc Output 35,915 Tons

October zinc statistics released by the American Zinc Institute indicate the strong position of the industry. Production was about 24% above the average for 1954 and shipments were about 14% above the 1954 average, and most important, less than 3% of October shipments went to the Government.

A summary of the September and October statistics of the American Zinc Institute, in tons, follows:

	Sept.	Oct.
Stock at beginning....	46,084	42,167
Production	83,448	89,462
Production, daily rate..	2,781	2,886
Shipments:		
Domestic	83,664	85,770
Export-drawback ...	1,274	36
Government acc't. ..	2,427	1,942
Totals	87,365	87,748
Stock at end.....	42,167	43,881
Unfilled orders	52,278	61,746

Slab zinc production in September and October, by grades, with minor deductions for metallurgical losses in upgrading metal, in tons:

	Sept.	Oct.
Special High	31,792	35,915
Regular High	(a)8,915	7,768
Intermediate	(a)1,354	2,089
Prime Western, etc....	(a)41,376	43,678
Totals	83,437	89,450

(a) Revisions

Stocks of slab zinc at the end of September and October, by grades, in tons:

	Sept.	Oct.
Special High	3,519	6,391
Regular High	(a)4,956	3,079
Intermediate	(a)372	836
Prime Western, etc....	(a)33,320	33,575
Totals	42,167	43,881

(a) Revisions

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Malayan Tin Exports

Malaya exported 5,603 tons of tin metal in October compared with 6,613 tons in September, according to the Registrar of Malayan Statistics.

Of the October exports, the United Kingdom took 265 tons, the United States 3,235, the continent of Europe 948, British possessions 541, and other countries 614.

E&MJ METAL AND MINERAL MARKETS

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Government Not to Stockpile Aluminum First Half of 1956

No aluminum will be stockpiled in the first half of 1956, ODM announced last week. It also said 25,000 tons which was to be paid back to the Government by December 31, 1955, will not need to be delivered until April 30, 1956. The announcement means about 200,000 tons more available in the first half of 1956.

During 1955 the Government in effect has been letting industry have aluminum, on which the Government had first call, under two conditions: That aluminum usually referred to as "deferred" was not marked for any particular period of repayment—in fact it was considered likely it never would be repaid (see our issue of June 23, 1955). A part of the deferred aluminum was scheduled for repayment by December 31, 1955; this part is the 25,000 tons that has been postponed until April 30, 1956. During 1955, ODM relinquished 250,000 tons to industry. All told, about 275,000 tons were released to industry in 1955.

The aluminum which is usually referred to as "deferred" is a part of the aluminum from the increase in primary capacity in the U.S. that had been encouraged by Government aid. This capacity increase totaled about 620,000 tons. The agreements between the three primary producers permitted them to "put" all of this metal to the Government if it was not taken by industry. This was a guaranteed market. In addition, two-thirds of the new capacity was to be divided between the non-integrated users and the Government—this amounted to about 415,000 tons. The aluminum taken by the Government goes toward filling the stockpile, the expected goals of which it now appears decreases with increases in primary capacity. The notion that Government deferral of aluminum has merely postponed the length of time during which it would put metal into the stockpile now, more than ever, appears unlikely.

It has been suggested primary capacity is now sufficient to hold the stockpile at near present levels. It may be, after repayment of the 25,000 tons in April—and this perhaps could be relinquished to industry also—no more aluminum will go into the stockpile. This would be dependent in part on the consumer demand for the metal since the "put" clause by which the companies can require the Government to take metal are still operative. The Government's obligations do not expire until six years after the plants come into operation. A few plants will be covered into 1959 though most terminate in 1958. Even if the Government does not take much metal, at the expiration date its obligations cease.

The above discussion does not refer to Anaconda Aluminum, Harvey or Olin-Mathieson. Of these only Harvey has a market guarantee.

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Malayan Tin Production In September 5,133 Tons

Advance statistics published by the International Tin Study Group put mine production of tin-in-concentrates in September at 5,133 tons in Malaya, 3,206 tons in Indonesia and 1,282 tons in the Belgian Congo.

World tin metal production increased from 13,800 tons in July to 14,200 tons in August. U. S. tin metal production in August was 1,749 tons and in September 1,751 tons.

World stocks of tin increased from 62,200 at the end of June to 65,600 tons at the end of July. U. S. stocks, excluding the strategic stockpile, increased in the same period from 24,728 tons to 28,169 tons. In the U. K., stocks at the end of September were 7,500 tons against 8,000 a month earlier.

World tin consumption in August is estimated at 12,600 tons against 11,800 tons (revised) in July. U. S. consumption in August at 5,310 tons was the largest monthly figure since January 1951. U. K. consumption, which was 1,576 tons in August, rose to 1,920 tons in September.

Japanese Non-ferrous Metals

The Japan Mining Association reports output of electrolytic copper in September reached a new postwar high, while output of other metals remained at about the same level as in August. The increased output of copper reflected heavy demand and high prices, according to a Reuters report.

Output of non-ferrous metals in September and August was as follows (in metric tons):

	Sept.	Aug.
Electrolytic copper	10,575	10,543
Electrolytic lead	3,482	3,502
Electrolytic zinc	6,691	6,566
Distilled zinc	3,494	3,422

Stocks of non-ferrous metals at the end of August and July were as follows, according to the Ministry of International Trade and Industry (in metric tons):

	Aug.	July
Electrolytic copper	1,514	1,081
Electrolytic lead	902	502
Electrolytic zinc	800	823
Distilled zinc	400	520

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Japanese Steel Makers Will Resume Iron and Scrap Imports

Japanese Steel manufacturers will resume iron and scrap imports shortly under a new "cartelized" system, Reuters reports.

Under the system, the Steel Scrap Coordinating Committee, composed of seven leading steel mills, will act as sole agents in negotiating prices with foreign shippers. Previously, steel mills could deal with foreign shippers independently as well as through the Committee.

A Committee spokesman said competition among Japanese importers under the old system had caused import prices to rise so sharply that import negotiations had had to be suspended for a month pending "cartelization."

The spokesman added that the Committee's buying price when negotiations were resumed would be slightly below $70 per ton, c.i.f., against current offers from American shippers ranging from $70.50 to $73. Initial purchases will involve between four and five shiploads.

Japanese steel mills have gradually lowered their buying prices for domestic scrap iron and steel to between 23,000 and 24,000 yen per ton from a peak of over 25,000 in October.

Steel mills formed a "cartel" last March to hold down their purchase prices of domestic scrap iron and steel to an agreed level. They had to suspend this "cartel" temporarily in October to encourage collection of domestic supplies, whose price was rising beyond the agreed level of 18,500 yen per ton. The subsequent decision of the Japanese Government to restrict exports and output of steel has had the effect of curbing domestic scrap iron and steel prices.

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Germany Buys Swedish Iron Ore

Reuters reports West Germany has arranged to buy 7-million tons of iron ore from Sweden in 1956. The price is 75-77 Swedish crowns per ton.

International Minerals and Metals Corporation

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Miscellaneous Metals

Quotations cover wholesale lots, f.o.b. New York, unless otherwise specified.

ALUMINUM — Per lb., base price, f.o.b. shipping point, (freight allowed): 30 lb. ingot, 99% plus, 24.4c.; in pigs, 22.5c.

Base prices on aluminum ingot of higher purity: 99.75%, 24.9c.; 99.8%, 25.4c.; 99.85%, 26.4c.

ANTIMONY — Cents per lb., 99½% grade:

	Domestic Boxed (a) New York	Domestic Bulk (b) Laredo
Nov. 10	36.470	33.000
Nov. 11	Holiday	
Nov. 12	36.470	33.000
Nov. 14	36.470	33.000
Nov. 15	36.470	33.000
Nov. 16	36.470	33.000

(a) Boxed (224 lb.) 10,000 lb. or more but less than carload. (b) In bulk, carload, f.o.b. Laredo; boxed one-half cent extra.

(c) Nov. 8 was a holiday.

BISMUTH — Per lb., in ton lots, $2.25.

CADMIUM — Per lb., delivered.

	Commercial (a) Sticks	Special (b) Shapes
Nov. 10	$1.70	$1.70
Nov. 11	Holiday	
Nov. 12	1.70	1.70
Nov. 14	1.70	1.70
Nov. 15	1.70	1.70
Nov. 16	1.70	1.70

(a) Base price. (b) Special shapes to platers.

(c) Nov. 8 was a holiday.

CALCIUM—Per lb., in ton lots, cast in slabs and small pieces, $2.05.

CHROMIUM — Per lb., 97% grade, 0.5% C, $1.25; 9-11% C, $1.34. (Usually sold as chrome-metal.)

Electrolytic chromium, commercial grade, 99% min., f.o.b. Niagara Falls, N. Y., per lb.: $1.25.

COBALT—Per lb., rondelles or granules, in 500 to 600 lb. containers, $2.60; in 100 lb. containers, $2.62; less than 100 lb. containers, $2.67. Prices ex. docks or store N. Y. or Niagara Falls.

Cobalt fines, $2.60 per lb. of Co contained, f.o.b. N. Y. or Niagara Falls, standard package of 650 lb.

COLUMBIUM — No quotation.

GALLIUM — Per gram, in 1,000 gram lots, $3; 1 to 999 grams, $3.25.

GERMANIUM — Per lb., $295.

INDIUM — Per oz. troy, 99.9%, $2.25.

IRIDIUM — Per oz. troy, $100@$110.

LITHIUM — Per lb. 98%, $11@$14.

MAGNESIUM — Per lb., 10,000 lb. lots: Pig ingot 99.8%, Freeport, Tex., 32.5c; Port Newark, N. J. 33.9c; Madison, Ill., 33.7c; Notched ingot, Freeport, 33.25c; Port Newark 34.7c; Madison, 34.5. Effective Aug. 16, 1955.

MANGANESE—Per lb., delivered, 95.5% Mn, 2 in. x down, carloads, bulk, 45c.; packed, 46¼c.

Electrolytic, per lb., f.o.b. Knoxville, Tenn., with freight allowed east of Mississippi; Min. 99.9% Mn.; Carload 30c.; ton lots, 32c. Premium for hydrogen-removed metal 0.75c, per pound.

MOLYBDENUM — Per lb., 99% $3.00.

NICKEL — Per lb., electrolytic cathodes, f.o.b. Port Colborne, Ont., contract price, 64½c, U.S. import duty included. Nickel oxide sinter, 60¾c per lb. of nickel content, f.o.b. Copper Cliff.

OSMIUM — Per oz., $80@$100, nominal.

PALLADIUM — Per oz. troy, $22@$24.

PLATINUM—Per oz. troy $97@$112. Our appraisal of average, $102.

QUICKSILVER — Per flask of 76 lb, $279@$283.

RADIUM — Per mg. radium content, $16@$21.50, as to quantity.

RHODIUM — Per oz. troy, $118@$125.

RUTHENIUM — Per oz. troy, $45@$55.

SELENIUM—Producers quote $9@$10 per lb; distributors $10.50.

SILICON — Per lb., minimum, 97 percent Si, maximum 1 percent Fe, crushed, carload lots, in bulk, 20½c.

SODIUM — Per lb., carload lots, in drums, 16½c.; less than carload lots, 17c.

TANTALUM — Per kilo, base price, $137 for rod; sheet, $93.

TELLURIUM — Per lb., $1.75.

THALLIUM — Per lb., $12.50.

TITANIUM — Per lb., Grade A-1, 99.3% plus, maximum 0.3% iron, $3.75, f.o.b. shipping center. (On maximum .5% iron, $3.25.) Effective Nov. 1, 1955.

TUNGSTEN — Per lb., 98.8% minimum 1,000 lb. lots, $4.50. Hydrogen reduced, 99.9% plus, $5.

VANADIUM — Per lb, 100-lb lots, $3.45.

ZIRCONIUM — Per lb., sponge, $10.

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Metallic Ores

Prices in tons of 2,000 lbs., or "units" of 20 lb., unless otherwise stated.

ANTIMONY ORE—Per unit of antimony contained, 50 to 55%, $3.20@$3.35; min. 60% $3.90@$4.00; min. 65% $4.10@$4.25.

BERYLLIUM ORE — Per unit BeO contained, 10-12% f.o.b. mine, Colorado, $46@$48, depending on quantity.

Imported ore, per short ton unit of BeO, c.i.f. U.S. ports, basis 10% to 12% BeO, $36@$38.

CHROME ORE—Per long ton, dry basis, subject to penalties if guarantees are not met, f.o.b. cars N. Y., Phila., Balt., etc.

Rhodesian:
48% Cr_2O_3, 3 to 1 ratio lump (b) $43.00@$44.00
48% Cr_2O_3, 2.8 to 1 ratio... (b) $40.00@$41.00
48% Cr_2O_3, no ratio..... (b) $29.00@$31.00

South African (Transvaal):
48% Cr_2O_3, no ratio.....$31.00@$32.00
44% Cr_2O_3, no ratio.....$23.50@$24.50

Turkish (basis 48% 3 to 1):
48% Cr_2O_3, 3 to 1 ratio, lump and concentrates .....$52@$53
46% Cr_2O_3, 3 to 1 ratio, lump and concentrates .....$46@$48
Pakistan (Baluchistan):
48% Cr_2O_3, 3 to 1 ratio .....(a)$45@$46
(a) Nominal. (b) Long term contracts.

COBALT ORE — Per lb of cobalt contained, f.o.b. Cobalt, Ont., 9% grade, $1.30; 10%, $1.40; 11%, $1.50; 12%, $1.60.

COLUMBITE — Per lb of pentoxide, $1.75@$2.00, basis 50% Cb_2O_5. Nominal.

IRON ORE — Per long ton, Lower Lake ports. Lake Superior ore:

Mesabi non-bessemer, 51½% iron, $10.10. Old Range, non-bessemer, $10.25.

Mesabi, bessemer, 51½% iron, $10.25. Old Range, bessemer, $10.40.

Eastern ores, cents per long ton unit, delivered at furnaces: Foundry and basic, 56@62%, 17@18c.

Swedish, 60@68% (contracts), per unit, 22c plus, depending on grade, c.i.f. Atlantic ports.

Brazilian, per gross ton, 68.5% iron, f.o.b. port of shipment: Contracts $11.50 @$12.00; nearby business $12.25@$12.50.

MANGANESE ORE—Consumption continues at high level, and business has picked up slightly. Freight rate increases have pushed up the price to consumers.

Indian ore was quotable at $1.03@$1.05 per long ton unit of Mn, c.i.f. U. S. ports, duty extra, basis 46 to 48% Mn, nearby positions.

On long-term contracts for ore from various sources, 46@48% Mn, quotations nominal at 94@96c, c.i.f. U.S. ports, duty extra.

Low iron, 48% Mn (max. 2% Fe), $1.10 per long ton unit of Mn, duty extra.

Chemical grade, per ton, coarse or fine, minimum 84% MnO_2, carloads, in drums $96; burlap bags $90.50 f.o.b. Philadelphia.

MOLYBDENUM ORE — Per lb of contained Mo, f.o.b. Climax, Colo., plus cost of containers, $1.05.

TITANIUM ORE—Per gross ton, ilmenite, 59.5% TiO_2, f.o.b. Atlantic seaboard, $20, nominal.

Rutile, per lb, minimum 94% concentrate, 10@15c, depending on time of delivery.

TUNGSTEN ORE — Per short ton unit of WO_3, concentrates of known good analysis, basis 65%:

Foreign ore, per short ton unit of WO_3, nearby arrival, c.i.f. U.S. ports, duty extra: Wolfram. $33.00@$33.50; scheelite $34.00@$34.50, depending on grade.

Western high grade scheelite concentrate, $63 per unit, f.o.b. mine.

North Carolina high grade concentrate, $63 per unit, f.o.b. mine.

London, per long ton unit of WO_3, buying prices, good ore: Wolfram 242s 6d bid, 247s 6d asked.

METALLURGICAL CHROME ORE

SPOT DELIVERY
IN CARLOAD LOTS
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VANADIUM ORE — Per lb V_2O_5 contained, domestic, 31c, f.o.b. mine.

ZIRCON ORE (sand) — Per long ton, c.i.f. Atlantic seaboard, minimum 65% ZrO_2, $48@$49.

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Metallic Compounds

ANTIMONY TRIOXIDE — Per lb, carload lots, in bags, 29c; less than carload, 30½c.

ARSENIOUS OXIDE (arsenic trioxide), refined, white min. 99%, per lb, 5½c, in barrels carload lots delivered.

COBALT OXIDE — Ceramic grade 72½ to 73½% Co, $1.96 per lb east of Mississippi and $1.98½ per lb west of Mississippi. Quotations are for oxide packed in 350-lb containers.

COPPER SULPHATE — Per lb, in carload lots, 14.9c, large or small crystals, f.o.b. N.Y.

GERMANIUM OXIDE — Per lb, $142.

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Rolled Metals, Etc.

BRASS — Cents per lb (base prices)

	Sheet	Wire	Rods
Yellow Brass	52.27	52.81	(a) 42.41
Best quality brass ..	54.29	54.83	54.23
Red brass 80%	56.55	57.09	56.49
Red brass 85%	58.09	58.63	58.03
Com'l bronze 9%	60.18	60.72	60.12
Gilding metal	61.74	62.28	61.68

(a) Free cutting

CADMIUM — Per lb Special shapes, to platers, $1.70.

COPPER — Per lb Sheets, over 20 in. wide, 62.76c, rolls 20 in. and under, 60.79c; Wire, bare, carload lots f.o.b. mills 48.35c.

LEAD SHEETS — Per lb, full rolled, 140 sq ft, 21c.

MONEL METAL — Per lb (base prices) Standard cold-rolled sheet, 78c; cold-rolled strip, 87c. Rods, hot-rolled 69c.

NICKEL — Per lb (base prices) sheets, cold-rolled, $1.02; rods, hot-rolled, 87c.

NICKEL SILVER — Per lb, sheets, 10% 66c; 18% 69.63c; wire and rods, 10% 68.33c.

PHOSPHOR BRONZE — Per lb, sheets, 5% tin, 80.99c; wire and rods, 5% 81.49c; 10% 87.53c.

ZINC — Per lb, carload lots f.o.b. mill (base price): Sheet 23c; ribbon 20½c; plates 19½@22¼c, depending on size.

ZINC DIE-CASTING ALLOY — Ingot per lb, carload lots, delivered, 17½@ 18½c.

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United States Gold Price

The price paid by the United States Treasury for gold purchased by the mints continued at $35 per troy ounce of fine gold, less ¼ of 1%.

Actual payment by the United States Treasury for gold in imported and domestic ore or concentrate is at 99.75% of the price quoted by the Treasury, which at present is equal to $34.9125 per oz.

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Antimonial Lead • Copper Anodes

Solder • Metal Powders • Zinc Die Cast Alloy

Selenium • Tellurium • Germanium

Buyers, Smelters and Refiners of

Gold, Silver, Copper, Zinc and Lead Ores, Sweeps, Mattes and Bullion, Copper and Brass Scrap, Copper Bearing Material, Zinc Drosses and Skimmings, Lead Scrap and Residues, Lead Covered Cable, Tin Bearing Material and Automobile Radiators.

Non-ferrous Metals Council To Discuss Copper Prices

Paris (McGraw-Hill World News)—The International Council of Non-Ferrous Metals will meet in Paris on Nov. 17 and 18 to discuss the problem of the high price of copper and possibilities of replacing it with other materials. Representatives of most European copper-consuming countries will attend, including the United Kingdom, France, Germany, Italy, Portugal, Sweden and Switzerland. Copper-producing Rhodesia and the Belgian Congo will also send delegates to the meeting.

Delegates will discuss copper substitutes such as plastics and aluminum which are being used in various branches of industry in their countries. Several European countries have replaced copper by plastics in the manufacture of water mains and, in some sectors of their construction industries, it has been reluctantly decided to use aluminum as a substitute wherever possible because of the high price of copper. Aluminum is also used in electrical installations, especially in Germany, where it represents 10 to 20% of the material used for the manufacture of cables.

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British Guiana Bauxite

British Guiana exported $12,089,276 worth of bauxite during the first six months of the current year, it is officially announced. Of the total, 110,610 tons consisted of calcined material. Main outlets were Canada, Britain and the U. S.

Indian Aluminum Industry

A committee of experts has been set up by the government of India to help draw up a plan for the development of the aluminum industry. The committee will examine a report on possible sites for additional units for the production of aluminum, having regard to the availability of bauxite, power and other facilities. It will study the need for setting up additional aluminum fabricating units and suggest possible sites for such units. The committee will also give an estimate of the cost involved in each case.

The possibility of using aluminum structurals in place of steel structurals and the extent to which such substitution can be carried out in the next few years will be another subject for study by the committee, Reuters reports.

Vitro Uranium Will Buy Hidden Splendor Output

Uranium output of the Hidden Splendor Mining Co., owned by Floyd B. Odlum's Atlas Corp., in Emery County, Utah, will be purchased by Vitro Corp. of America through a recent agreement by the two firms.

Contract, subject to approval by the U. S. Atomic Energy Commission, is also dependent upon the expansion of Vitro's milling facilities at Salt Lake City, Utah.

Hidden Splendor, discovered by Vernon Pick and sold to the Odlum interests, is expected to deliver a minimum of 5,000 tons uranium ore monthly under the three-year contract. Provisions have been made to handle deliveries of 9,000 tons per month.

U. S. Iron and Steel Scrap and Pig Iron

Summary of production, receipts, consumption and consumers' stocks of iron and steel scrap and pig iron, April 1955 to September 1955 in thousands of gross tons:

	Scrap for Consumption			Consumption		Consumers' Stocks end of month	
	Home Scrap Produced	Purchased Scrap Received (Net)	Total	Scrap	Pig iron	Scrap	Pig iron (a)
Apr.	3,487	2,824	6,311	6,239	5,725	6,467	1,872
May	3,524	2,903	6,427	6,415	6,044	6,481	1,860
June	3,432	2,615	6,047	6,117	5,774	6,414	1,889
July	3,087	2,313	5,399	5,447	5,430	6,367	2,082
Aug.	3,419	2,697	6,116	5,913	5,769	6,568	2,205
Sept. (c)	3,527	2,572 (b)	6,099	6,102	5,958	6,568	2,209

(a) Suppliers' stocks included with consumers' stocks.
(b) Excludes 262,000 gross tons of scrap shipped, transferred or otherwise disposed of during month.
(c) Preliminary.

WATCH THESE TRENDS

(A regular feature usually appearing the third week of each month)

ELECTRIC-FURNACE-GRAPHITE dies are the clues to American Smelting and Refining Co.'s Perth Amboy, N. J., recent success in developing a continuous casting unit, which is producing 105-in. lengths of bronze alloys in 5- to 9-in. diameters. Previously, large diameter solid, tubular or intricate shapes were made only by sand, permanent mold and centrifugal casting methods. Stock length of ASARCO's continuous cast bronze is 105 in. as compared to 12- to 13-in. for older casting methods.

Almost any intricate shape, from 7/16 to 9-in., can be cast. Product is cut to customer's specifications, thus reducing waste and continuous cast products require less machining than older methods; another cost cutter. Continuous cast products are exceptionally free from inclusions and gases, due to gravity casting technique. No blow holes, hard or soft spots appear in the product.

Impact toughness, tensile strength, yield strength and hardness of continuous cast bronze are superior to other casting methods. It is available in several alloys that show fatigue strengths 33-100% over those of the same alloys produced by other methods.

Molds, dies and mandrels for the casting machines were made from electric furnace graphite, because the low first cost of the material augments the fact that graphite is not soluble in molten bronze and the high heat transfer rate of graphite makes large diameter casting possible. ASARCO has been producing continuous cast-bearing bronze for about twenty years.

GADOLINIUM was mentioned at the recent American Mining Congress convention as an exciting ingredient in portable X-ray equipment. One large electrical equipment manufacturer is reported to be offering $32 a gram for the rare element with the high neutron cross-section. Attempts to remove traces of "breeder reaction stopping" gadolinium from thorium might eventually supply more of the metal.

PHOSPHOR BRONZE ALLOYS manufactured under special conditions which provide for fine grain sizes and other superior physical properties is being offered under the trade-mark "Duraflex" by American Brass Co. New alloys are available in sheet up to 0.062 in. and in wire up to 3/16 in. Manufacturer claims alloys are superior to conventional phosphor bronzes. Duraflex will be sold with grain size no larger than 0.012 mm.

Surface of new alloy is smooth, free from scratches and other defects. Corrosion resistance, hardness, fatigue resistance and formability are superior to ordinary phosphor bronze. Where forming could be done on ordinary hard temper phosphor bronze, now extra-hard Duraflex can be used.

STAINLESS STEEL containing little or no nickel, was announced by U. S. Steel Corp., at last month's American Iron and Steel Institute regional meeting at Cleveland, Ohio. Patent application has been made on the new alloy, which substitutes nitrogen for nickel and controls chrome and manganese content. Some rolling and finishing problems remain to be solved before the alloy becomes commercially available.

TUNGSTEN-CARBIDE FLAME-PLATING technique is being used by Linde Products Co., 30 East 42nd St., New York 17, N. Y., to increase the abrasion resistance of many parts and tools such as spindles, sewing machine feed dogs, bushings, seals, gages, mandrels, dies, core rods and rubber cutting knives. Mixing oxygen, acetylene and tungsten-carbide in a special gun causes a detonation, which heats the carbide to plasticity and propels the particles at supersonic speeds at the workpiece.

Temperature in the gun reaches 6,000 deg F, while temperature of the workpiece seldom reaches 400 deg F. There is little chance that the piece will warp or that its metallurgical properties will be affected. Coatings from 0.002- to 0.01-in. can be produced on such metals as steel, cast iron, aluminum, titanium, nickel and manganese. Method will not work on chrome plated material.

Finished product from the coating step is 125-microinch rms finish. Surface can be taken down to 0.5-microinch finish if desired, by wet diamond grinding methods. 100 concentrate resinoid-bonded diamond wheels are recommended and Cincinnati Transparent Grinding Fluid or equivalent should be used to protect coating.

Coated tools have 75% longer tool life. Motor parts show fantastic resistance to wear. Rubber skiving knives, flame-coated on one side and thus self sharpening, have 15 times more wear life than ordinary knives. Finished surfaces will have 89.3 Rockwell A hardness and porosity will be less than 0.5%. Reagents that attack cobalt will attack coating. Mild alkali, detergents, lubricating oils and acid-free atmospheres will not harm finish.

HIGH TEMPERATURE ALLOYS by the consumable electrode remelting vacuum technique are being produced by Allegheny Ludlum Steel Corp., Watervliet, N. Y., from their newly completed 250,000 pound per month plant. Present facilities of Allegheny are 10 times present industry consumption. Potential users, who backed away from super alloys because of short supply, now can get all they want.

High performance alloys from this remelting process are cleaner, more homogeneous, have sounder ingots and better mechanical properties. Workability has not been discussed and some experts question whether or not the super alloys will be tougher to machine, now that the impurities have been removed in the remelting process.

VACUUM DEGASSED STEEL, produced by Bochumer Verein AG, Bochum, West Germany, may become available to U. S. consumers. Process rights are being offered to U. S. steel producers by National Research Corp., Cambridge, Mass.

APOLOGY AND CORRECTION. In last month's column we stated that New Jersey Zinc Co. was producing the zinc-rich plastic paint. This was incorrect; Horse Head supplies the dust and the following companies manufacture the paint: Sealube Co., Wakefield, Mass.; Debevoise Co., Brooklyn 32, N. Y.; Subox Inc., Hackensack, N. J.; Galvicon Corp., New York City, and American Cold Galvanizing Co., Cambridge, Mass.

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September Primary Aluminum

Production of primary aluminum in September 1955 totaled 130,606 short tons, a decline of about 2% from August, as estimated by the Bureau of Mines. It represented an increase of 9% compared with production for the corresponding period of 1954. Month-end stocks at reduction plants declined 26% from the previous month and the stocks of 9,898 tons were slightly less than three days output based on the current rate of production.

	1953	1954	1955
January	89,895	116,247	128,203
February	92,649	110,483	116,236
March	104,460	122,339	130,272
April	102,071	120,434	126,394
May	105,464	125,138	131,128
June	104,152	120,758	127,634
July	109,285	126,161	132,669
August	110,545	125,296	133,551
September	109,333	120,332	130,606
October	108,219	125,089	.....
November	105,636	121,252	.....
December	110,291	127,035	.....
Total preliminary	1,252,000	1,460,564	.....
Final	1,252,013	1,460,565	.....

Primary aluminum sold or used by primary producers, for the first nine months in 1955 totaled 1,167,939 short tons. Stocks at the end of June amounted to 12,680 short tons. At the end of July stocks amounted to 16,338; August, 13,417; and September, 9,898.

Imports of crude aluminum in August totaled 17,621 tons, of which Canada supplied 17,276 tons, Norway 179 tons, Netherlands 30 tons, and Switzerland 22 tons. Japan and W. Germany each supplied two tons with 110 tons coming from other countries. Total imports in the Jan.-Aug. period amounted to 130,572 tons.

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Non-Metallic Minerals

Prices received for non-metallic minerals vary widely and depend upon the physical and chemical characteristics of the commodity. Hence the following quotations can serve only as a general guide to the prices obtained by producers and dealers in different parts of the United States for their own product.

Tons of 2,000 lb unless otherwise noted.

ASBESTOS—Per short ton, f.o.b. mines Quebec, U. S. funds:

Crude No. 1 $960@$1,500; Crude No. 2 $595@$900.

Spinning fibers: 3-F $514; 3-K $436; 3-R $371; 3-T $348; 3-Z $321.

Shingle stock, $150@$200; Paper stock, $109@$137; Waste, $77; Shorts, $35@$70.

Per short ton, f.o.b. Vancouver, B.C., U. S. funds:

(Continued on page 11)

Alloys

FERROCHROMIUM — Per lb of Cr: High carbon (4-9% C) 65-69% Cr, lump, carloads f.o.b. destination continental U.S.A. 26¼c; low carbon, 0.01C, 32¾c.

FERROCOLUMBIUM — Per lb of Cb contained, 50-55%, $6.80@$6.90.

FERROMANGANESE—Per net (short) ton, 74-76% Mn, $190, f.o.b. shipping point seaboard and major domestic producing points.

FERROMOLYBDENUM, Etc. — Per lb of Mo contained, f.o.b. shipping point: Ferromolybdenum, 58-64% Mo, powdered, $1.57, all other sizes $1.46; calcium molybdate ($CaO\ MoO_3$), $1.28; technical molybdic trioxide (MoO_3), bagged, $1.24, canned, $1.25.

Quantity extras, subject to change without notice, follow:

5,000 lb or more, base price; 1,000 lb up to 4,999 lb, 2c; 500 lb up to 999 lb, 3c; 100 lb up to 499 lb, 6c; 25 lb up to 99 lb, 6c plus $5 packing charge.

FERROPHOSPHORUS — Per gross ton, 23-25% P, carloads f.o.b. Siglo, Mt. Pleasant, Tenn., $90. Unitage of $4 for each 1% of P above or below the 24% base.

FERROSILICON — Per lb of contained Si, f.o.b. shipping point: 50% grade 11¾c; low-aluminum 12.95c.

FERROTITANIUM LOW - CARBON — Per lb of Ti contained: 25%, 0.10% C, $1.50; 40%, 0.10% C, $1.35, f.o.b. destination east of Mississippi River.

FERROTUNGSTEN — Per lb of W contained, 72-82% W, $3.45 in lots of 5,000 lb or more. Effective on contract business, Sept. 1.

FERROVANADIUM — Per lb of V contained: Open hearth, $3.10; crucible, $3.20; low-carbon and silicon, $3.40.

SILICOMANGANESE — Per lb carload lots, f.o.b. shipping point, bulk: 65-68% Mn, max. 1½% C, 18-20% Si 11.2c; max. 2% C, 15-17½ Si, 11c; max. 3% C, 12-14½% Si, 10.8c.

SPIEGELEISEN—Per gross ton, carload lots, f.o.b. Palmerton, Pa.: 16-19% Mn, 3% max. Si, $86; 19-21% Mn, $88; 21-23% Mn, $90.50.

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Brass and Bronze Ingot

85-5-5-5 (No. 115) 41c; 80-10-10 (No. 305) 44¾c; 88-10-2 (No. 215) 52¾c. Yellow, 32¾c and upward. Manganese bronze (No. 421) 36¼c.

E&MJ QUOTATIONS

Daily Prices of Metals

Nov.	ELECTROLYTIC COPPER Domestic Refinery	ELECTROLYTIC COPPER Export Refinery	TIN Straits New York	TIN 99% (a) New York	LEAD New York	LEAD St. Louis	ZINC Delivered (b)	ZINC East St. Louis
10	43.450	43.750	96.250	95.250	15.500	15.300	13.500	13.000
11	Holiday	43.675	Holiday	Holiday	Holiday	Holiday	Holiday	Holiday
12	No Market	43.650	96.250	95.250	15.500	15.300	13.500	13.000
14	42.950	44.150	96.750	95.750	15.500	15.300	13.500	13.000
15	43.150	44.125	97.125	96.125	15.500	15.300	13.500	13.000
16	43.025	43.625	98.375	97.375	15.500	15.300	13.500	13.000
Averages	43.144	43.829	96.950	95.950	15.500	15.300	13.500	13.000

(a) Nominal Quotation for tin content.

(b) Prime Western Zinc sold on delivered basis at centers where freight from East St. Louis exceeds one-half cent a pound.

Average Prices for calendar week ended Nov. 12 are: Domestic copper f.o.b. refinery, 43.017c; export copper f.o.b. refinery, 43.567c; Straits tin, 96.219c; New York lead, 15.500c.; St. Louis lead, 15.300c; Prime Western zinc delivered 13.500c; East St. Louis zinc, 13.000c; and silver 91.625c.

The above quotations are our appraisal of the major United States markets, based on sales reported by producers and their agencies. They represent payments received by producers for the product. They are reduced to the basis of cash, New York or St. Louis, as noted. Prices in cents per pound.

Copper, lead and zinc quotations are based on sales for both prompt and future deliveries; tin quotations are for prompt delivery only.

In the trade, domestic copper prices are quoted on a delivered basis, that is, delivered at consumer's plants. As delivery charges vary with the destination, the figures shown above are net prices at refineries on the Atlantic seaboard. Delivered prices in New England average 0.300c. per pound above refinery basis.

Our export quotation for copper reflects prices obtaining in the open market and is based on sales in the foreign market reduced to the f.o.b. refinery equivalent, Atlantic seaboard. On f.a.s. transactions we deduct 0.075c. for lighterage, etc., to arrive at the f.o.b. refinery quotation.

Quotations for copper are for ordinary forms of wirebars and ingot bars. The premiums on special shapes, effective in some instances on deliveries beginning Sept. 1, 1955, are: Standard ingots 0.25c per pound; slabs 0.55c and up, cakes 0.6c and up, depending on weight and dimensions; billets 1.725c and up, depending on dimensions and quality. Discount on cathodes 0.125c to 0.15c per pound.

Quotations for zinc reflects sales of the Prime Western grade as well as sales of other grades when sold on a Prime Western basis. Premiums obtaining over Prime Western zinc in the East St. Louis market on the following grades, in cents per pound: Selected 0.10c; Brass Special 0.25c; Intermediate 0.5c. High Grade zinc sold on contract, delivered to the consumers' plant, commands a premium of 1.35c per pound over the East St. Louis basis for Prime Western; on Special High Grade the premium or differential is 1.50c to 1.75c per pound, depending on seller, effective Oct. 20.

Quotations for lead are for the common grade, and are based on sales of domestically refined metal sold to domestic consumers. The differential on sales in the Chicago district is 15 points under New York; for California 20 points under New York; for New England add 7½ points to the New York basis. Corroding grade commands a premium over common lead of 10 points.

Note: The daily quotations for copper, lead and zinc are weighted averages of sales reported to E&MJ; weekly averages are arithmetical averages of the daily quotations; monthly averages are the arithmetical averages of the daily quotations.

Silver, Gold, and Sterling Exchange

Nov.	Sterling Exchange	Silver New York	Silver London	London Gold (a)
10	280.1562	91.625	79.250	249s. 8¼d.
11	Holiday	Holiday	79.250	249s. 9d.
12	Not Quoted			
14	280.1875	91.625	79.250	249s. 8½d.
15	280.2544	91.625	79.250	249s. 7¾d.
16	280.2321	91.625	79.250	249s. 7½d.
Av.	280.208	91.625	(a) Open market	

The daily silver quotation reported by Handy & Harman, in cents and fractions of a cent per troy ounce, is the price paid by Handy & Harman in settlement for silver contained in unrefined silverbearing materials submitted to them for refining. It is determined on the basis of offers of bar silver .999 fine as made to Handy & Harman for nearby delivery at New York by regular suppliers in quantities sufficient to meet daily requirements, and it is usually one quarter cent below the price at which such offers are made.

The Treasury's purchase price of newly mined domestic silver was established at 90.5c per troy ounce, 1000 fine, effective on July 1, 1946 under an amendment to the Silver Purchase Act of July 6, 1939.

London silver quotations are in pence per troy ounce, basis .999 fine.

London gold quotations are per troy ounce, basis 1000 fine.

Sterling, in cents, N. Y. Federal Reserve Bank average of noon buying rates.

THIS WEEK'S BUSINESS INDICATORS

	Latest Week	Preceding Week	Month Ago	Year Ago	Net Change Year Ago
Steel Rate (% of capacity in operation)	99.6	98.3	98.9	79.3	+20.3
Steel Ingot Production, thousands of tons	2,404	2,372	2,386	1,892	+512
Automobile Production (cars and trucks)	215,609	199,950	130,778	141,606	+74,003
Electric Power Output (millions kwh.)	10,853	10,659	10,639	9,357	+1,496
Engr'g Const. Awards, 4-week daily av., in thousands (c)	$59,080	(a) $59,872	$67,743	$51,332	+$7,748
Federal Reserve Index of Industrial Production (e)	(d) 141 Oct.	.....	141	125	+16
E&MJ Index of Nonferrous Metal Prices (b)	(d) 236.44 Oct.	.....	236.44	187.50	+48.94
All Commodities, Bureau of Labor Statistics (e)	(d) 111.6 Oct.	.....	111.6	109.7	+1.9

(a) Revised. (b) 100 is composite of 1922-3-4. (c) From Eng. News-Record. (d) Preliminary. (e) Base period 1947-49

London Metal Exchange

Nov.	COPPER Cash Bid	COPPER Cash Asked	COPPER 3 Mo. Bid	COPPER 3 Mo. Asked	LEAD Current Month Bid	LEAD Current Month Asked	LEAD 3 Mo. Bid	LEAD 3 Mo. Asked	ZINC Current Month Bid	ZINC Current Month Asked	ZINC 3 Mo. Bid	ZINC 3 Mo. Asked	TIN Cash Bid	TIN Cash Asked	TIN 3 Mo. Bid	TIN 3 Mo. Asked
10	367	368	356	357	107	107¼	106⅞	107	91⅞	92	90¾	91	769	771	750	751
11	367	368	358	358½	106⅞	107	106¾	106⅞	91¼	91½	90⅝	90¾	771	772½	751½	752½
14	379	379½	367½	368½	107¼	107¼	107⅛	107¼	92	92¼	91	91¼	774	776	754	756
15	378½	379½	368½	369	108	108¼	107¾	108	92	92¼	91¼	91½	783	785	757½	758½
16	381	382	370	371	107¾	108	107½	107¾	91¾	92	91¼	91½	790	791	765	766

Prices are for the official a.m. session in pounds sterling per ton of 2240 lb. Copper basis wire bars, lead 99.97%, zinc 98% and tin min. 99.75%.

Note: For lead average, Monterrey, see page 11; U.S. Gold, see page 5.

Future Growth of Thorium Is Seen Dependent Upon Non-Energy Research and Development

No new purchase contracts for thorium are being contemplated by the Atomic Energy Commission at the present time, according to *Engineering and Mining Journal*, which devoted seven pages of its November issue to the mining, processing and outlook for the much-discussed atomic mineral.

AEC has been buying by-product thorium in excess of licensed domestic and export sales for research and development and for stockpile. Under the Atomic Energy Act of 1946, shipments and sales are subject to the Commission's licensing regulations.

Thorium "may possibly be converted into a satisfactory fuel for production of atomic power," the article points out, but adds, "When, and to what extent these uses may become important will be dependent upon results of research and development programs."

The mineral, often mentioned in addresses by Government and industry leaders, attracted particular attention at the UN meeting at Geneva during the past summer, when its use in the breeder reactor was discussed. But, most authorities agree, Th offers no threat to uranium in this and other nuclear applications today and has a long way to go before it will.

In non-energy uses, thorium has had surges of production and interest in the periods of World War II and Korea. Its major use in industry is still in the manufacture of gas mantles for incandescent lamps. In metallurgy, it also finds application as in the fields of chemistry and medicine. Pending the results of current research, no great dramatic advance is seen in demand or production for industrial uses.

Source is Monazite

Principal raw material sources for thorium, as far as U. S. producers are concerned, are the monazite placers of Brazil and India and the high-grade hydrothermal deposit in the Union of South Africa. Tin and gold placers, while containing extensive and high-grade monazite are not being worked for even secondary recovery of the thorium-bearing minerals in many parts of the world. Most producers agree that the high costs involved in such recovery are prohibitive at today's low value.

Monazite mining and processing today is substantially a rare earths industry. Rare earths in the ore have increased in use almost as thorium has declined.

If the industry processed monazite for thorium only, about 200 tons per year of 6% monazite would be needed for non-energy end use. But, at the present time, over 3,000 tons of monazite are being imported to satisfy domestic rare earths requirements. Surplus thorium in these shipments is being sold overseas, stockpiled at the refinery or sold to the Government.

Even with the expanded use of rare earths (which contribute to the ready availability of thorium for research and industrial use) most industry observers forecast a long haul before volume production for thorium itself will be profitable.

Governments are Involved

The editors of *E&MJ* found in the source of their survey that Canada, the United Kingdom, Australia, Union of South Africa, India and Colombia, as well as the United States, regulate the mining and disposition of thorium-bearing ores. India, one of the prime sources, is continuing the ban on exports set up by the Maharajah of Tranvancore in 1948. The new government of India has set up a mill to extract the thorium for stockpiling and permit export of rare earths as before. Brazil permits shipments only on a government-to-government basis.

In the U. S., financial assistance to thorium exploration and development is available from the Defense Minerals Exploration Administration and, according to administrator Charles O. Mittendorf, "it is expected to remain on the list." Office of Defense Mobilization has no stockpiles of thorium or thorium compounds and ore. "No expansion goals for thorium have ever been established," notes C. F. Ogden, assistant director for materials.

Major producers in the thorium field are led by Lindsay Chemical Co., the largest and one of the oldest. Maywood Chemical Works, another leading source, has been producing thorium compounds since the 1900's and mined extensively up to the decline of the gas mantle industry.

Foote Mineral Co., one of the principal producers in the past, is not now refining thorium concentrates and would only be interested in ore purchases if assured of "a continuing and competitive domestic supply."

Davison Chemical division of W. R. Grace & Co., affiliated with Rare Earths Inc., a Grace subsidiary, is coming into the picture on a 10,000 ton per year rare earth and thorium basis. The two firms are conducting a joint research program on production methods and end uses.

Crane Co., manufacturers of fixtures, anticipates production of 1,500 to 2,000 tons per year monazite from its subsidiary, Marine Minerals Inc., which will produce rutile, ilmenite and zircon as well. Crane is not now refining concentrates. Societe de Produits Chemique des Terres Rares, producing thorium and rare earths at their Paris installation, are also members of the Marine Minerals project and will draw from the 2,000 tons of monazite production.

In Idaho, Baumhoff-Marshall Inc. is dredging rare earth sands and in Florida, Humphreys Gold Corp. is dredging monazite beach sands. Metal Hydrides Corp., Beverly, Mass., and Westinghouse Corp. have produced small quantities of metallic thorium since 1935, purchasing raw materials from regular producers.

Societe de Produits Chemique de Terres Rares was called in to advise the governments of Brazil and India in the construction of their respective separation plants. Both producers, major sources of thorium and rare earths, now extract the atomic mineral before permitting shipment of the earths.

Production figures for thorium are classified under the Atomic Energy Act of 1946, so total output must remain undisclosed. However, the current non-energy use may be indicated in the total poundage authorized by the AEC for non-energy uses in 1954 – 20,190 lb.

AEC Authorizations for Thorium Purchases*

(U. S. non-energy uses, 1950-54. In pounds ThO_2)

Industry	1950	1951	1952	1953	1954
Magnesium alloys	....	....	....	3,600	4,647
Gas-mantle manufacture	48,471	31,132	25,427	8,707	9,765
Refractories and polishing compounds	1,889	3,382	1,157	236	24
Chemical and medical	2,097	6,246	11,064	5,179	3,738
Electrical	314	1,457	277	1,222	2,016
Total	52,771	42,217	37,925	18,944	20,190

*From Thorium by John E. Crawford, A Chapter from *Mineral Facts and Problems, Bulletin 556*, U. S. Bureau of Mines.

U. S. Consumption of Thorium 1947-1951*

(in pounds ThO_2)

End Use	1947	1948	1949	1950	1951
Gas mantles	26,658	36,697	44,621	48,471	31,132
Refractories and polishing	3,110	1,634	1,847	1,889	3,382
Chemical and medical	1,176	1,767	596	2,097	6,246
Electrical	1,283	427	237	314	1,457
Total	32,227	40,525	47,301	52,771	42,217

**Minerals Yearbook* by U. S. Bureau of Mines.

U. S. Imports of Thorium-bearing Ores and Compounds*

(in short tons)

Year	Brazil	India	Others
1936	...	119	488
1937	...	336	...
1938	110	346	...
1939	54	1,336	170
1940	201	2,766	...
1941	747	2,763	...
1942	1,346	3,052	...
1943	1,911	3,069	...
1944	...	384	...
1945	437	112	...

**Mineral Trade Notes*, a monthly publication by U. S. Bureau of Mines. Data since 1945 has not been released.

Reprints of the seven-page article on thorium, appearing in the November issue of *Engineering & Mining Journal* may be obtained for 35c from the Reprint Dept., *Engineering and Mining Journal*, 330 West 42nd St., New York 36, N. Y.

Non-Metallic Minerals

(Continued from page 8)

Spinning fiber (3-K) $460; shingle fiber (4-K) $185.

Per ton, f.o.b. Hyde Park or Morrisville, Vt.:

Spinning fiber, $279.50@$302; shingle fiber, $135@$162; paper fiber, $81.50@$115; waste, stucco or plaster, $71.40; refuse or shorts, $34@$63.

BARYTES – F.o.b. cars.

Georgia: Barytes ore, crude, jig and lump, $15 per net ton; beneficiated, $17@$19 per net ton, in bulk, $21.50 in bags.

Missouri: Per ton, water ground and floated, bleached, $41.35, carlots, f.o.b. works. Crude ore, minimum 94% $BaSO_4$, less than 1% iron $14.25.

Canada: Crude, in bulk, f.o.b. shipping point, $11 per long ton; ground, in bags, $16.50 per short ton.

BAUXITE – Per long ton. Domestic ore chemical, crushed and dried, 55 to 58% Al_2O_3, 1.5 to 2.5% Fe_2O_3, $8.00@$8.50, f.o.b. Alabama and Arkansas mines. Other grades, 56 to 59% Al_2O_3, 5 to 8% SiO_2, $8.00@$8.50, f.o.b. Arkansas mines. Pulverized and dried, 56 to 59% Al_2O_3, 8 to 12% SiO_2, $14@$16, f.o.b. Arkansas mines. Abrasive grade, crushed and calcined, 80 to 84% Al_2O_3, $17, f.o.b. Arkansas mines. Crude (not dried) 50 to 52%, $5.00@$5.50, f.o.b. Arkansas mines.

Imported bauxite, calcined, crushed (abrasive grade) 83 to 86% Al_2O_3, $19.75 per long ton, f.o.b. port of shipment, Br. Guiana. Refractory grade bauxite, $24.20.

CORUNDUM–Per ton, crude, c.i.f. U.S. ports, $100 to $120, nominal.

FELDSPAR – per ton, f.o.b. point of shipment, N. C., bulk: 200 mesh, $18.50; 325 mesh, $22.50; glass, No. 18 grade, $12.50; semi-granular, $11.75.

FLUORSPAR–Metallurgical grade, effective CaF_2 content, per short ton, f.o.b. shipping point Illinois and Kentucky:

	Short Ton
72½%	$33.00
70%	$32.00
60% plus	$28.00
Pellets, 60%	Nom'l

Acid grade concentrates, per short ton, bulk, carload lots:

F.o.b. Rosiclare, Ill., $47.50.

Ceramic grade, min. 94% CaF_2, calcite and silica variable; Fe_2O_3 0.14%, $45 per short ton, in bulk, f.o.b. Rosiclare. In 100-lb bags $4 extra.

European fluorspar c.i.f. U.S. ports, duty paid, per short ton: Metallurgical grade, 70% effective CaF_2, $32@$34; acid grade, $50.00@$52.50, nominal.

Mexican fluorspar, f.o.b. border, metallurgical, 72½% effective CaF_2 content, all rail, duty paid, $25.75 per short ton; barge, Brownsville, Tex., $27.50@$27.75.

GRAPHITE – Per lb, carload lots, f.o.b. shipping point:

Crystalline flake, natural; 85-88% C, crucible grade, 13c; 96% C, special and dry usage, 22c; 94% C, normal and wire-drawing, 19c; 98% C, special for brushes, etc., 26½c.

Amorphous, natural, for foundry facings, etc., up to 85% C, 9c.

Madagascar, c.i.f. New York, "standard grades 85 to 87% C," $235 per ton; special mesh $260; special grade 99% C, nominal.

Amorphous graphite, Mexican, f.o.b. point of shipment (Mex.), per metric ton $9 to $16 depending on grade.

KYANITE–Per ton f.o.b. point of shipment, Va. and S.C., 35 mesh, carload lots, in bulk $29; in bags $32. For 200 mesh, in bags, carload lots, $40.

Imported kyanite, 55 to 59% grade, in bags, c.i.f. Atlantic ports $75@$80 per short ton.

(Other non-metallic minerals – see Nov. 3 issue.)

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Refractories

CHROME BRICK – Per ton f.o.b. shipping point: Chemically bonded $86; burned, $80.

FIRECLAY BRICK–Per M, first quality, $122.00, Missouri, Kentucky, Pennsylvania; high heat quality, $107.00. Ohio, intermediate grade, $107.00; second quality, $98.00.

MAGNESITE – Brick, per ton f.o.b. works, 9-in. straights, $109; chemically bonded, $97.50.

SILICA BRICK – Per M., Pennsylvania, $120.00; Alabama, $120; Illinois, $130.

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Iron, Steel, and Coke

PIG IRON – Per gross ton Valley furnaces: Bessemer, $59.50; basic, $58.50, and No. 2 foundry, $59.00.

STEEL – Per net ton, f.o.b. mill, Pittsburgh, billets and slabs, $68.50; Bars per 100 lb., $4.65; plates and structural shapes, $4.50@$4.60.

COKE – Per ton, Connellsville furnace, $13.50@$14.00; foundry, $16.50@$17.00.

STEEL SCRAP – Per gross ton, delivered Pittsburgh No. 1 heavy $43.00; No. 2 heavy $40.00; Cleveland, No. 1 heavy $42.00; No. 2 heavy, $38.00.

Tri-State Concentrates

Joplin, Nov. 15, 1955

Blende	*Per Ton*
Prime coarse (60% zinc)	80.00
Flotation, 60% zinc	80.00
Galena	
Coarse and flotation, 80% lead	(a)$195.05

(a) Effective Sept. 27, 1955.

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Lead Average (Monterrey)

The net price realized by the American Smelting & Refining Co. on all of its sales of Mexican pig lead, including metal sold for consumption in Mexico, during the week ended Nov. 5, 1955, was 13.09 (U.S.) per lb, f.o.b. refinery Monterrey, Mex.

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Smelters' Aluminum Alloys

Delivered prices of smelters' aluminum ingot per pound, in lots of 10,000 lb. or more.

Piston alloy 32@32½c; No. 12 alloy 30@30¾c, No. 13 alloy, max. .30 copper, 32@32¾c.

Deoxidizing grades: No. 1, 31@31½c; No. 2, 30@30½c; No. 3, 29@29½c; No. 4, 28@28½c.

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Smelters' Copper Scrap Prices

Custom smelters' buying prices for scrap, carload lots, refinery:

No. 1 copper and wire, 40c; No. 2 heavy copper, 38½c; light copper, 36¼c; refinery brass, 36c.

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Dealers' Scrap Prices

Dealers' buying prices, f.o.b. New York or equivalent freight points, for wholesale quantities, in cents per lb.

No. 1 copper wire	37@37¼
Heavy copper & wire, mixed	35@35¼
Light copper	32½@33
No. 1 composition	29@29¼
Composition turnings	27@27½
Light brass	17@17½
Yellow brass turnings, mix	17½@18
Heavy yellow brass, mixed	18½@19
Auto radiators, unsweated	23@23½
Brass pipe, cut	24@24½
Rod brass turnings, No. 1	22@22½
Rod ends, brass	23@23¼
New soft brass clips	24@24¼
Cast aluminum, mixed	16½@17
Aluminum crankcases	16½@17
Aluminum clips, new soft	19@19½
Sheet aluminum, old clean	16@16½
Aluminum turnings, clean	11@11½
Zinc die cast, mixed	3¾@4½
Zinc die cast, new	5¼@5¾
Old zinc	5@5½
New zinc clips	7¾@8
Soft or hard lead	12@12½
Battery plates	6½@7
Babbitt mixed	14@14½
Linotype or stereotype	14@14½
Electrotype	12@12½
Solder joints close cut	18@18½
Block tin pipe	80@81
Autobearing babbitt	46@48
Monel clips, new	55@58
Monel sheet, clean	50@53
Nickel, rod ends	90@95
Nickel, clippings	90@95

Kennecott Copper Corporation
Kennecott Sales Corporation

Producers and Sellers of

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Chino Fire Refined Copper (K. C. M.)
Braden Fire Refined Copper (★★★)
Molybdenite

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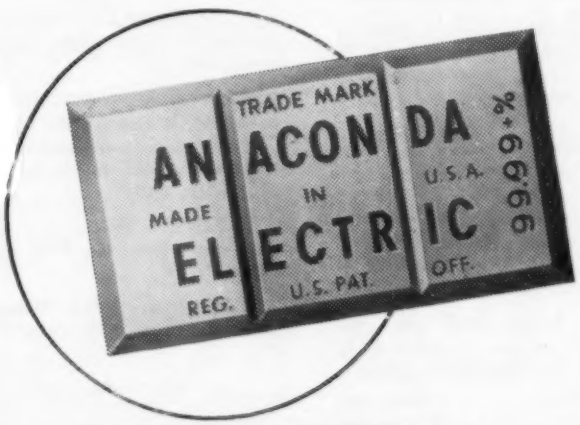

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